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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,560	01/25/2001	Michael Benjamin Ronci		5145

7590 11/29/2006

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EXAMINER

VERBITSKY, GAIL KAPLAN

ART UNIT PAPER NUMBER

2859

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/768,560	RONCI, MICHAEL BENJAMIN	
	Examiner	Art Unit	
	Gail Verbitsky	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 9 is objected to because of the following informalities:

Claim 9: A) the numerals "1, 2, 3, 4" after "threshold temperature" have to be deleted and replaced with --first threshold temperature--, --second threshold temperature--, etc.

B) It is not clear what particular wall applicant means by "substantially vertical bottom wall" because normally the bottom wall is a horizontal wall. Appropriate correction/clarification is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In this case, it appears from claim 9 (see (ii)), that the thermochromic layer comprising different ink layers, however, this limitation has not been clearly described in the specification.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama in view of Palmer (U.S. 5128616) and St. Phillips (U.S. 4933525).

Maruyama discloses a ceramic mug (col. 21, line 24), a thermochromic display comprising thermochromic ink layer applied onto a film (supporting substrate) having an image (indication marks). The thermochromic display applied/ printed directly onto an outer surface of the ceramic mug. When hot water/ 70 degrees C (hot beverage) is poured into the mug, the thermochromic ink layer becomes transparent (from opaque) revealing image 3, as shown in Fig. 6 (col. 21, example 4).

Maruyama discloses a device in the field of applicant's endeavor including all the subject matter claimed by applicant with the exception of the plurality of segments.

Palmer discloses a device in the field of applicant's endeavor wherein a thermochromic indicator ink layer 50 having a plurality (three) portions, each portion is responsive to its own threshold temperature, and thus becoming transparent at their own temperature revealing a plurality segments /windows, wherein each segment reveals different color (mark) at said temperature thresholds. The thermochromic ink layer turns from colored/ opaque to transparent at room temperature. It is inherent, that at some temperatures, i.e., intermediate temperature (second threshold temperature) between the first threshold temperature and the third threshold temperature) the thermochromic ink is only partially opaque (col. 3, col. 4). The indicator can be attached to a surface with an adhesive.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display, disclosed by Maruyama, so as to

have a plurality of different thermochromic segments, as taught by Palmer, responding to different temperatures by revealing different windows (marks), so as to allow the operator to not only see a critical data, but also to allow the operator to see an image (marks) corresponding to intermediate temperatures, in order to make the device usable with different types of object of interest, especially when very fine accurate thermal response is needed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Maruyama, so as to be able to attach the display to the surface of interest (mug) with an adhesive applied to the substrate (film), as taught by Palmer, in order to allow the user to replace it should the indicator become damaged, and thus, to make the mug reusable.

### ***Response to Arguments***

6. No arguments have been submitted with the present amendment.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

**Schultz (U.S. 4916386)** discloses a device in the field of applicant's endeavor wherein a fluid in a container/ vessel heats and rise in temperature causing a specific liquid crystal member/ segment of the strip to change color (or reveal a mark/ indicia) to therefore designate a specific power (col. 1, lines 62-66) and temperature. Although the strip is calibrated in energy units, it is sensitive to temperature change (entire col. 2), i.e., changing color at corresponding temperature, and, then calibrated in Watts. The device can be attached with an adhesive.

**GB 1228232** discloses a thermochromic surface temperature indicating material comprising an array (segments) of the thermochromic materials of increasing transition temperature differently responding to different temperatures.

**Weiss (U.S. 5830596)** discloses in Fig. 8 a thermochromic display 24, 23 comprising a thermochromic layer 24 covering a mark/ indicia 23. The thermochromic ink goes from colored (opaque) to colorless (transparent) to reveal the mark/ indicia 23 underneath of it when exposed to a predetermined (activation) temperature/ heating from a surface of interest (battery). Weiss teaches that the thermochromic material could be either liquid crystal or thermochromic ink.

**Heinmets et al. (U.S. 4156365)** disclose a device/ thermochromic indicator 14 applied to an exterior wall of a food vessel (mug, col. 1, line 46) 10. The indicator has markers (marks) 16 and 18. The strip has an additional strip, which changes from transparent (clear) to a color marker 16 to indicate reaching or exceeding a predetermined temperature.

**NL 1013024C2** discloses a temperature indicator/ display comprising a surface thermochromic ink layer that is transparent over a given temperature range, the layer covering at least one LC the color of which depends/ changing on the temperature measured. The temperature indicator can be attached to a beverage vessel (baby bottle with milk).

**Klima** discloses in Figs. 1-4 a heat-sensitive thermochromic display/ device (label) attachable to a surface of interest. The device comprises a support layer impregnated with a liquid crystal (thermochromic) layer 16, and, when activated by heating/ predetermined temperature, the layer 16 becoming transparent to light (col. 4, line 54) and an indicia/ mark/ information/ message 12 (HOT) becomes visible/ revealed

to the user (as opposed to opaque when cooled). The display also comprises a base/ substrate 14 and an adhesive layer 23 to directly apply/ print the display having the substrate 14 and the adhesive layer 23 onto a surface of interest.

**GB 2401176A** discloses a device in the field of applicant's endeavor wherein a thermochromic inks are revealing a mark/ word "hot" or become faded (opaque) when a beverage inside a container is cold.

**St. Phillips (U.S. 4933525)** discloses a device n the field of applicant's endeavor wherein a thermochromic indicator comprises a plurality segments revealing different color at different temperature. The indicator can be attached with an adhesive.

**Wunderlich** discloses a thermochromic temperature indicator (display) comprising plurality thermochromic ink segments 50, 52, 64, 56 visible through windows 42, 44, 46, 48 and having different thresholds (transition temperatures). The thermochromic segments are adapted to be converted from opaque to transparent at different temperatures revealing a colored paint (marks) through a respective window. The color mark is corresponding to temperature and humidity. Although calibrated for determining humidity, the indicator is responsive to temperature change and goes from opaque to transparent at different temperatures 9col. 4, lines 1-2). The display can be attached to a surface of interest by an adhesive (col. 3, lines 53-68 and col. 4, lines 1-6). Wunderlich also states that numerous types of thermochromic ink having different threshold temperatures (different segments) are available commercially (col. 3, lines 60-65).

**Manico et al. (U.S. 6113857)** disclose a device in the field of applicant's endeavor, the device having a support/substrate 11, and adhesive layer 13 attached to

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the support with one side and adhesively attaches/ printed onto a surface of interest with another side.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gail Verbitsky whose telephone number is 571/ 272-2253. The examiner can normally be reached on 7:30 to 4:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571/ 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GKV

Gail Verbitsky

Primary Patent Examiner, TC 2800



November 09, 2006